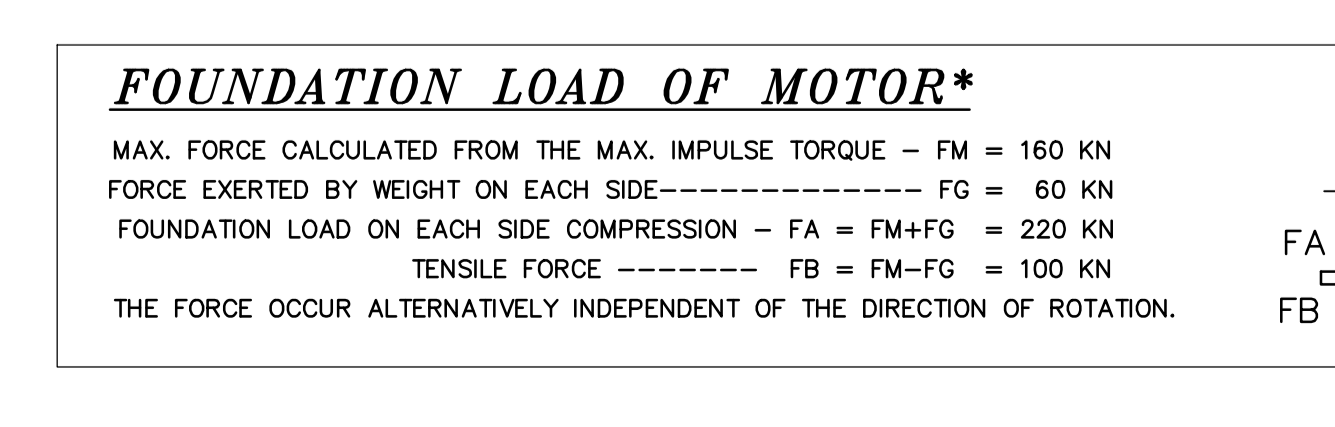
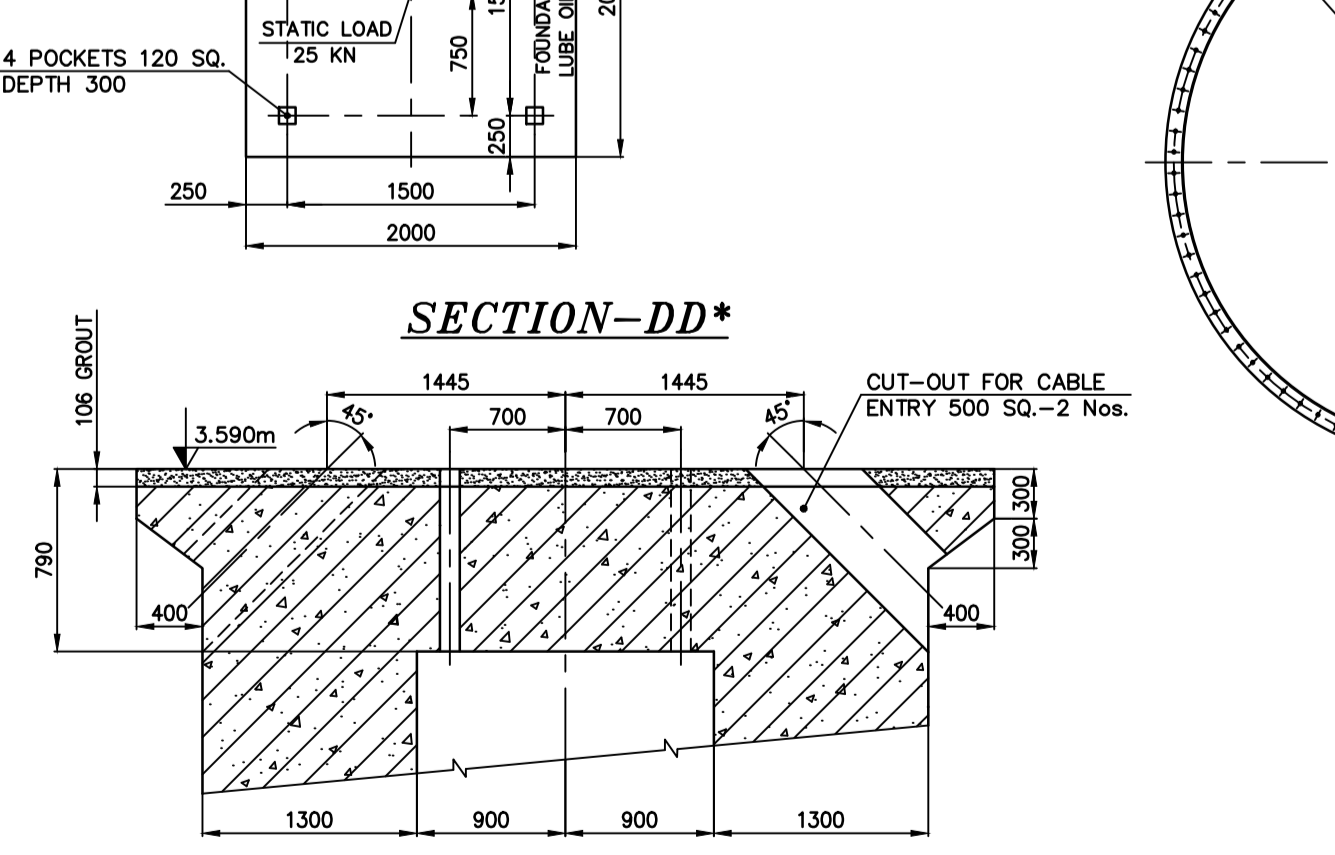
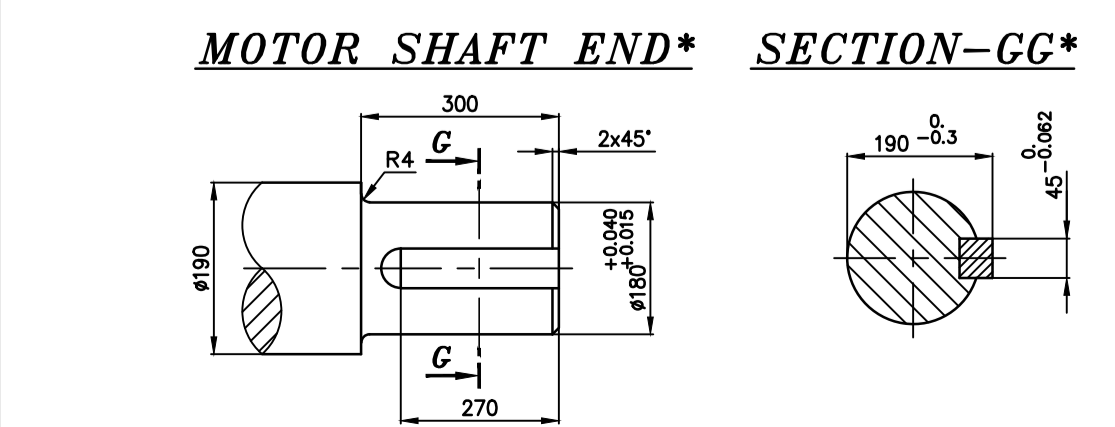


- NOTES:-**
- THE LOADS INDICATED ON FOUNDATION ARE WITHOUT ALLOWANCES FOR VIBRATIONS. CIVIL DESIGNERS ARE RESPONSIBLE FOR PROPER DESIGN OF FOUNDATION TAKING INTO ACCOUNT THE ALLOWANCES FOR VIBRATION ALSO.
 - THE DIFFERENT NATURAL FREQUENCIES OF THE FOUNDATION HAVE TO BE 20% AWAY FROM THE SPEED FREQUENCY, $f_{nmax} = n/60$ AND 15% AWAY FROM THE DOUBLE OF THE SPEED FREQUENCY, $2 \times f_{nmax}$. THIS MEANS: $0.8x f_n$ TO $1.2x f_n$ AND $0.85x(2x f_n)$ TO $1.15x(2x f_n)$. SPEED FREQUENCY $f_{nmax} = 16.5$ HZ ($2 \times f_{nmax} = 33.0$ HZ)
 - THE STIFFNESS OF THE FOUNDATION HAS TO BE AT LEAST $CF > 1.0E+06$ N/MM IN LONGITUDINAL, TRANSVERSAL AND VERTICAL DIRECTIONS RELATING TO THE FAN AXIS. IT HAS TO BE TAKEN INTO CONSIDERATION THAT ON SETTLING THE FOUNDATION THE TOTAL NATURAL FREQUENCIES OF THE FOUNDATION CAN ARISE DUE TO THE SOIL COMPACTION AND THE RESULTING INCREASES OF THE ELASTIC MODULUS. AN UNEVEN SETTLING OF THE FOUNDATION HAS TO BE EXCLUDED.
 - THE RATIO OF THE FOUNDATION MASS TO THE ROTOR MASS HAS TO BE GREATER THAN 25.
 - ADOPT IS: 2974 / PART-IV FOR THE FOUNDATION DESIGN.
 - THE CONNECTING DUCTS AT INLET AND OUTLET OF FAN MUST BE SELF SUPPORTED AND SHOULD NOT BE WELDED WITH EXPANSION JOINTS.
 - FOUNDATION POCKETS SHOULD BE PERPENDICULAR TO THE FLAT SURFACES OF FOUNDATION.
 - ACCURATE TEMPLATES SHALL BE USED FOR LOCATING CORES FOR POCKET HOLES TO ENSURE THEIR DIMENSIONAL ACCURACY.
 - TOLERANCE BETWEEN ANY TWO POCKET CENTRES IS ± 5 mm.
 - TOLERANCE ON CONCRETE LEVELS ± 5 mm.
 - IN AREAS WHERE SOLE PLATES AND ANCHOR PLATES ARE TO BE INCORPORATED IN FOUNDATION CONCRETE, THE SIZE OF THE COARSE AGGREGATE USED SHALL NOT EXCEED 20 mm AND DOWN GRADED TO FACILITATE CHIPPING AND SCRAPPING AND THEREBY ENSURING MAXIMUM CONTACT ON THE MATING AREAS.
 - NON-SHRINK GROUT IS TO BE USED. REFER GENERAL SPECIFICATIONS ISSUED BY BHEL/RANIPET FOR NON-SHRINK GROUT. THIS ALSO CONTAINS THE PREPARATIONS OF PRIMARY PACKERS & SHIMS.
 - GROUTING SHOULD BE DONE ONLY AFTER FINAL ALIGNMENT OF FAN.
 - ELEVATIONS & POCKET DEPTH SHOWN IN FOUNDATION PLAN ARE INCLUDING GROUTING THICKNESS.
 - GROUTING IS IN SCOPE OF ERECTION GROUP OF BHEL/AUTHORISED AGENCY.
 - HANDRAILS, STEEL PLATFORMS & CANOPY FOR MOTOR AND THEIR EMBEDMENTS ARE IN THE SCOPE OF BHEL/TRICHY.
 - FAN FOUNDATION SHOULD NOT BE USED AS SUPPORT FOR OTHER STRUCTURES OR EQUIPMENTS.
 - FOUNDATION CONFIGURATION SHOWN IN THIS DRAWING IS ONLY INFORMATIVE/TYPICAL. TYPE AND DETAILS OF FOUNDATION ARE TO BE FINALISED BY CIVIL DESIGNERS.
 - FOR MOTOR ERECTION, REFER MOTOR SUPPLIER'S ERECTION MANUAL.
 - BASE FRAME, SOLE PLATE, FOUNDATION BOLTS, FDN. SLEEVE & FASTENERS RELATED TO MOTORS WILL BE IN THE SCOPE OF MOTOR SUPPLIER (BHEL BHOPAL UNIT)

BILL OF MATERIAL

SL NO	DESCRIPTION	MATERIAL	QTY.	THICKNESS (MM)
16	FAN SHAFT	42 CR Mo4	1	-
15	OUTLET EXPANSION JOINT	IS:2062 & RUBBER	1	-
14	INLET EXPANSION JOINT	IS:2062 & RUBBER	1	-
13	SHIMS	S.S	AS REQD.	-
12	PRIMARY PACKER	IS : 2062	8	20
11	FOUNDATION FASTENERS FOR FAN	ASTM A105	15	-
10	COUPLING GUARD	IS : 2062	1	-
09	SPACER COUPLING	STEEL	1	-
08	MOTOR WITH FNDN. FASTENERS	2100 KW /996 RPM*	1	-
07	BLADES	ENAC-AS19MgT6	14	-
06	IMPELLER HUB	S355J263	1	-
05	HOUSING CORE	IS : 2062	1	8
04	DIFFUSER	IS : 2062	1	6
03	OUTLET GUIDE VANE ASSY.	IS : 2062	1	6
02	IMPELLER HOUSING	IS : 2062	1	10
01	SUCTION CHAMBER	IS : 2062	1	6
SL NO	DESCRIPTION	MATERIAL	QTY.	THICKNESS (MM)



FOUNDATION LOAD DATA

LOAD POINT	STATIC VERTICAL FORCE [N]	DYNAMIC VERTICAL FORCE [N]	STATIC HORIZONTAL IN AXIAL DIRECTION FORCE [N]	STATIC HORIZONTAL ACROSS TO AXIS FORCE [N]	DYN. HORIZONTAL ACROSS TO AXIS FORCE [N]
I	+44600	± 1200	± 13200	± 3500	± 1200
II	+33300	± 1800	± 3100	± 1800	± 1500
III	+27000	± 1700	± 1700	± 5500	± 1700
IV	+18700	± 1700	± 1700	± 5500	± 1700

FOUNDATION LOAD OF MOTOR*

MAX. FORCE CALCULATED FROM THE MAX. IMPULSE TORQUE - FM = 160 KN
 FORCE EXERTED BY WEIGHT ON EACH SIDE----- FG = 60 KN
 FOUNDATION LOAD ON EACH SIDE COMPRESSION - FA = FM+FG = 220 KN
 TENSILE FORCE ----- FB = FM-FG = 100 KN
 THE FORCE OCCUR ALTERNATIVELY INDEPENDENT OF THE DIRECTION OF ROTATION.

DIMENSIONS / ITEMS MARKED WITH "*" WILL BE CONFIRMED LATER.

FAN DETAILS:

TYPE : FAF 26.6/12.5-1
 NO. OF FANS PER BOILER : TWO (IDENTICAL)
 WEIGHT OF ROTATING PARTS : 2400 kg
 GD² OF FAN : 1400 kg.m²
 SPEED OF FAN : 990 RPM

MOTOR DETAILS:*

MAKE : M/s. BHEL/BHOPAL
 TYPE : 1LA7903-6
 RATING : 2100 KW/996 RPM/133 AMP/11 KV
 WEIGHT OF ROTATING PARTS : 12000 kg
 GD² OF MOTOR : 652 kg.m²
 MOTOR DRG. NO. : 1 402 00 41254
 BEARINGS : DE: ROLLER BRG-NU 238
 BALL BRG-6238 MC 3
 GREASE QUANTITY(1300 GM, INITIAL FILL)
 NDE: ROLLER BRG-NU 232M
 GREASE QUANTITY(500 GM, INITIAL FILL)
 LUBRICATION : IOC GREASE SERVOGEM 3 OR EQUI.

CAUTION: THE INFORMATION IN THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY.

REV	ISSUED FOR NTPC REVIEW	DESCRIPTION	DATE	P.S.N	S.AGARWAL	V.P.SHYAM
00	ISSUED FOR NTPC REVIEW		08.07.2014	P.S.N	S.AGARWAL	V.P.SHYAM

BHEL CUSTOMER NOS. R821 & R822

NTPC DRG NO. **9549-102-PVM-B-017**

CUSTOMER: **NTPC LIMITED.**
 (A Government of India Enterprise)

PROJECT: **DARLIPALI SUPER THERMAL POWER PROJECT**
 STAGE-I 2 X 800MW
 STEAM GENERATOR PACKAGE

BHARAT HEAVY ELECTRICALS LIMITED.,
 BOILER AUXILIARIES PLANT
 RANIPET - 632 406

TITLE: **GA DRAWING FOR FD FAN WITH FOUNDATION PLAN AND LOADING DATA FAF 26.6/12.5-1**

ALL DIMENSIONS IN MILLIMETRE BHEL DRG. NO. **1-00-098-28961** REV. **00**

PROJECTION: SCALE: N.T.S.